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ABSTRACT

This bibliography shows how various states are dealing with the work force crisis and provides examples of tech prep articulation agreements. Forty citations from ERIC and other databases include guides, research reports, project descriptions, conference papers, and position papers. Three articles, representative of current wisdom in the field, are reprinted: "Vocational Education: Issues for Our Future" (Marvin Feldman); "2 + 2 Tech-Prep Associate Degree Program: Program Activities and Support Services" (Judith Marmaras); and "Technology Education Partnerships: Arkansas Articulation" (Dale Thompson et al.). Each entry in the annotated bibliography has these components: title, date, author, developer, availability, annotation, and format. (YLB)

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Tech-Prep

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Tech-Prep

A Bibliography

State of Florida
Department of Education
Tallahassee, Florida
Betty Castor, Commissioner
Affirmative action/equal opportunity employer

Division of Vocational, Adult, and Community Education

March 1991

The Division of Vocational, Adult, and Community Education expresses appreciation to each of the following.

Subject-Matter Expert
Dee Wilder
Center for Instructional Development and Services
Florida State University
Tallahassee

Project Manager
Leanne Morin-Plourde
Center for Instructional Development and Services
Florida State University
Tallahassee

Editor
Robert Nixon
Center for Instructional Development and Services
Florida State University
Tallahassee

Designer
Robert Celander
Center for Instructional Development and Services
Florida State University
Tallahassee

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Introduction

The Secretary of Labor's Commission on Workforce Quality and Labor Market Efficiency prepared a report in 1989 titled *Investing in People: A Strategy to Address America's Workforce Crisis*. The crisis referred to concerns a work force that is not prepared to meet the present needs of industry, let alone the more challenging jobs of the future. The report states that "our country and our people must make fundamental changes in the way we educate, train, and retrain our workers, and in the way we match up people and jobs."

Specific recommendations of the report include:

1) a stronger emphasis on scientific and technical study in primary and secondary grades
2) incentives for student achievement at the high school level
3) tax incentives to encourage employer-provided training programs.

There are several consequences of the gap between the skills workers have and the skills they need. Many jobs go unfilled for lack of workers, while the unemployment rate among young people stands at 14.4% and the minority unemployment rate at 30.8%. The skills gap also presents a threat to America's continued prosperity and economic growth. (Dole 1989)

The outlook for the year 2000 is fewer new young workers but an increase in the percentage of women and minorities entering the work force. Wolfbein (1987) writes:

> At least two things stand out as we view the upcoming supply of new hands, new skills, new talents: The numbers are diminishing significantly, and we are going to have to depend more and more on women and minority personnel for whatever supply we do get. Under the circumstances, and particularly in view of the accelerating advances in technology, the education, training, and updating of the diminishing supply is a matter of urgent necessity.

In response to this issue, the Florida Chamber of Commerce, the State Board of Education, the Board of Regents, and the State Board of Community Colleges have adopted the Comprehensive Plan for Improving Mathematics, Science, and Computer Education. This state policy guides efforts to improve student learning, performance, and achievement in those subject areas. One goal of the plan is to involve more minorities and women in mathematics and science courses and careers.

To address the educational needs of the changing work force at the national level, Congress recently passed the Carl Perkins Vocational and Applied Technology Act. Recognizing the need for articulation between secondary and postsecondary institutions, this act encourages the formation of consortia for the development and operation of four year tech-prep education programs. Such programs, leading to two-year associate degrees or two-year certificates, respond to the needs of students and adults, the business community, labor and the job market, and the nation's economy. They include a common core of mathematics, science, communications, and technologies (Feldman 1988).

The purpose of this selective bibliography is to show how various states are dealing with the work force crisis, and to provide examples of tech-prep articulation agreements.

Citations in the bibliography include guides, research reports, project descriptions, conference papers, and position papers. Materials included in the bibliography were located through Florida Educational Information Service (FEIS). FEIS conducted searches of computerized retrieval systems, specifically the Educational Resource Information Center (ERIC) database on the DIALOG® Information Retrieval Service. The three articles selected for reprint describe current activity in the area of tech-prep.

FEIS is sponsored by the Florida Division of Vocational, Adult, and Community Education and is located in the Center for Instructional Development and Services, Florida State University.

For additional search information, contact Florida Educational Information Service, Center for Instructional Development and Services, 2003 Apalachee Parkway, Suite 301, Tallahassee, FL 32301-4829, (800) 428-1194.

Microfiche copies of ERIC documents are available through FEIS. To order these microfiche documents, use the order number found in the "Availability" field of the bibliographic entries. Microfiche documents may be ordered at a cost of $.60 per sheet. Each sheet contains up to 96 pages of printed copy.

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Articles

Feldman, Marvin (1988, December). *Vocational education: Issues for our future*. Paper presented at the American Vocational Association Convention, St. Louis, MO.

Discusses the need to provide educational programs that are responsive to the changing needs of society. Examines the role of vocational education in addressing these needs through tech-prep programs, and the significance of the bill known as the Tech-Prep Education Act.

Marmaras, Judy (1990). 2 + 2 tech-prep associate degree program: program activities and support services. *ASEE Annual Conference Proceedings* 1129–1132.

Provides description of the 2 + 2 tech-prep program of the Community College of Rhode Island and the Rhode Island Department of Vocational and Adult Education. Outlines the activities involved in implementing the program.

Thompson, Dale E. (1989, December). *Technology education partnerships: Arkansas articulation*. Paper presented at the Annual Conference of the American Vocational Association, Orlando, FL.

Describes the Arkansas Articulation Program and outlines the four phases of the articulation process. Provides a sample articulation agreement and articulation application.

American Vocational Association
Convention
Technical Education Division
St. Louis, Missouri
December 2, 1988

Marvin Feldman
President
Fashion Institute of
Technology
Seventh Avenue at
27th Street
New York, NY 10001

Vocational Education: Issues for Our Future

Recently, after a newsworthy event at my college, I was pleased to hear that some of my remarks were quoted in a number of New York newspapers. When I saw my words in print, I was a little less pleased. They were indeed my words, accurately quoted, but presented in a context that distorted my intent and entirely misrepresented my meaning.

Over the years, I've discovered the hard way that the simple act of opening your mouth to speak can lead you into dangerous territory--something like strolling through a mine field. I'm sure you know what I mean. At least I think you know what I mean...although maybe you don't, really. Come to think of it, you probably have no idea what I mean, and I ought to explain myself more clearly.

Better yet, let me tell you a story called "The Art of Communication, or Something is Lost in the Translation."

> The president tells the provost, "Next Thursday, at 4:30 a.m., Halley's Comet will appear over this area. This is a phenomenal event that occurs only once every 75 years. Call the deans and have them assemble the students on the athletic field. If it rains, cancel the observation and have the classes meet in the field house to see a film about the comet."
>
> The provost tells the deans, "By order of the president, next Thursday at 4:30 a.m., Halley's Comet will appear over the athletic field. If it rains, cancel the event and report to the field house with your classes where they will be shown films, a phenomenal event which happens only once every 75 years."
>
> The deans tell the chairmen, "By order of the phenomenal president, at 4:30 a.m. next Thursday, Halley's Comet will appear in our field house. In case of rain over the athletic field, the president will give another order, something which happens only once every 75 years."

Reprinted by permission

The chairmen tell the faculty, "Next Thursday at 4:30 a.m., the president will appear in the field house with Halley's Comet, something which happens only once very 75 years. If it rains, the president will cancel the comet and order us out to our phenomenal athletic field."

The faculty tell the students, "When it rains next Thursday at 4:30 a.m. over the athletic field, the phenomenal 75-year-old president will cancel all classes and appear before the students in the field house with Bill Haley and the Comets."

I guess everyone who's ever said something to anyone about anything knows a little something about the pitfalls of communication. These include being misquoted, misheard, misrepresented, misinterpreted and misunderstood. Of course, sometimes we "misspeak" (this isn't a real word but it's often heard in washington, where they do it a lot) -- leaving our listeners misinformed or mistaken, if not entirely mystified.

Though far too much of it is faulty, trivial and downright unnecessary, communication is, in essence, the very basis of human society. It makes possible the bonds of family and community, and the shared values and common goals on which civilization rests. In our increasingly complex world, it's essential that lines of communication be open so that people can work together on looming problems, local, national and global.

It's ironic that as mass communications become ever faster and more efficient, personal communication seems to become more difficult. We live in a world of increasing global interdependence, and yet, almost paradoxically, greater individual isolation.

All across America, there are broken families, crumbling neighborhoods and whole communities lost to poverty, unemployment, homelessness, violence and drugs. More and more, we're locking our doors against one another. More and more, we're suspicious of the stranger walking down our street. I am frightened for our future when I see neighborhood-watch signs spreading like weeds through once-peaceable suburban neighborhoods.

We've been living in a time of wrenching change--astonishing technological advances dramatically altering the workplace for most americans, globalization of industry, a bumpy economic ride. We've heard a lot in recent months about the nation's prosperity, and many Americans are indeed prosperous--particularly those who work for foreign-owned firms. But for large segments of our population, frustra-

tion, fear and despair are all too real. For the first time, a generation of young Americans are being told to lower their expectations; they'll probably do less well than their parents have done. For many middle-class kids, the cherished American dream may not come true. How many 35-year-olds can afford to buy a house? And many poor kids, it seems, have ceased to dream at all. Racial tensions are increasing; the gap between rich and poor is widening; the welfare of the aging seems incompatible with the interests of the young. And much of America seems disaffected or simply indifferent; less than half of those eligible bothered to vote in the recent presidential election.

I'm afraid I'm beginning to sound like a politician running for office, and I'm sorry to assault you with this litany of familiar ills. But I want to make the case for change. I want to plead for a change whose time has finally come.

For years, change has been a favorite theme of mine. I've made innumerable speeches about change--economic change, social and demographic change, and technological change so rapid and far-reaching as to be nothing less than revolutionary. I've talked so much about change that sometimes I think the only thing that never changes is the fact that I keep talking about it. Most of all, I've talked about the consequences of all this change for American education, and especially for vocational education.

Of course, we've seen the impact of social and economic trends in our schoolrooms and on our campuses. Of course, society's demands on education change with the times. Educational processes and procedures must be reexamined if we are to meet the needs of the nation, of American business and industry, and of the students who will be the productive citizens--workers, parents and leaders--of the decades ahead.

Next month a new president takes office. No discussion of the nation's economic crisis can be complete without a consideration of the educational needs of the unskilled and underskilled. In our preoccupation with corporate mergers, leveraged buyouts, junk bond futures, and a service economy, America is rapidly losing the technical superiority that has been the base of our prosperity, and our proudest export.

America will never again be particularly rich in natural resources. We have been rich in skill. Our competitive position in world markets was built on the superb technical skills and productivity of our people. We are losing that

edge. We must reclaim it. The key is a major reshaping of our educational system through strong vocational education extending beyond the high school, especially through our community colleges and postsecondary technical institutes.

A few specialists have been saying for years that we are miseducating at least half of our young people. But now, in the last two years, that perception has become part of the conventional wisdom. The negative correlation between school and college enrollments and probable career opportunities has become a familiar subject in the popular press.

Public concern has been greatly influenced by the economic crisis facing us. What has been tolerable in good times becomes intolerable when times are not as good. Miseducation wreaks terrible hardships on the individuals affected by it. Even in times of recession, skilled people remain in short supply, and the workers hardest hit by recession are the underskilled.

We must be responsive to these realities. The goal to be achieved--and it's we in this room who must achieve it--is a coordinated, cohesive, federal policy in the area of job-related education and retraining, and a flexible and responsive operational capability to back up that policy. The purpose is not the creation of new programs, or the expenditure of additional funds. It is to get the most out of existing programs, do away with the duplication and waste that currently exist, eliminate competition between programs, and overcome the lack of knowledge where it presently exits.

A coordinated approach to this problem would be to provide a program responsive to the complex interaction of job-related education needs of students and adults, the business community, labor and the job market and the nation's economy. These programs presently are spread throughout the federal government, and too often one agency is unaware of the related activities of another, if not actually working at cross-purposes. We have devised numerous programs, costing billions of dollars, and spread throughout many federal agencies, to make up for the deficiencies of the educational system in meeting its historic function of career preparation.

Education, in the public mind, has always been, and still remains, the key to success. In addition to basic literacy skills, the public still looks to the educational system for the teaching of job skills, from secretarial to scientific. Our society is based not on class but on the premise that educational attainment and the quality of education determine career advancement--the better the education, the better the job.

If I were still a fed, I would recommend that President Bush appoint a Presidential Counselor on Education for Employment, who would give the highest priority to the coordination of all existing federal programs involving education, training and employment. And one of the key concerns of the presidential counselor would be to provide much closer coordination between vocational programs and postsecondary technical education. More about this later.

In a climate of accelerating change, how should we educate students for the future? One common response to this question goes something like this: specific skills quickly become obsolete, so it's not very useful for students to learn them; a generally-educated person, without a specific skill, will be better able to cope with change. Therefore a general education is the best preparation for life and work in the 21st century, Q.E.D.

I object to this proposition. It has not in fact been demonstrated. It may sound logical, but it's simply untrue. As far as I know, no one has proved that a general education enhances the ability to cope with change, or that the learning of specific skills impairs it. No one has proved the unlikely proposition that a person who has demonstrated the ability to learn one skill will typically be unable to learn another and yet another, as necessary.

In fact, there is no "best" way to prepare for the future, no one way to learn that works for everyone. Educators know this, and the knowledge should be used to devise effective educational strategies for all kinds of students. Instead, we've often used our awareness of individual differences negatively, labeling students early on as fit or unfit for college...and then consciously or unconsciously making sure that each student lived up--or down--to our expectations; denying minority students access to the highest levels of education and technical training that lead to the highest-paying jobs; and tracking great numbers of students into general education programs leading neither to jobs nor further education--leading, in fact, nowhere.

The lives and talents of too many young people are going to waste. The nation's economic future is not so secure that we can afford the loss. And even if we could afford it, I hope we would not tolerate it; the cost in human terms is far too high.

It's the mission of educators to find ways to reach our young people, especially the most neglected. There are no easy answers, but there are practical approaches that need to be explored.

It seems to me that one of the great failures of education is the failure to recognize and systematically capitalize on the different ways people learn. Some people learn best through the written or spoken word; they are the lucky ones whose learning style has been given the highest value by traditional educators. Others learn best by handling tools and materials, and still others by using charts and graphs and other graphic arts media; others are more affective. Any of these means, along with many others, can be effectively used to teach almost any subject, but most schools teach each subject in only one style. The only students who succeed are those whose style it happens to be. The rest are branded failures, when in fact it is the schools that have failed.

We need to recognize and value mechanical, manipulative, graphic and other kinds of aptitudes as well as verbal. We need to help students in high school discover what it is they can do well, what it is they can contribute to society, and where in society they belong. We need to free ourselves from definitions of excellence that exclude large numbers of students who achieve in traditionally undervalued ways. Such definitions only prevent us from appreciating and nurturing the excellence in each student as an individual.

And now, I think it's a good time for another story--a fable by H.G. Reaves called "The Animal School."

> Once upon a time, the animals decided they must do something heroic to meet the problems of a "new world," so they organized a school. They adopted an activity curriculum consisting of running, climbing, swimming and flying. To make it easier to administer the curriculum, all of the animals took all of the subjects.
>
> The Duck was excellent in swimming,--in fact, better than his instructor; but he made only passing grades in flying and was very poor in running. Since he was slow in running, he had to stay after school and also drop swimming in order to practice running. This was kept up until his little webbed feet were badly worn and he was only average in swimming. But <u>average</u> was acceptable in school, so nobody worried about that except the Duck.
>
> The Rabbit started at the top of the class in running, but had a nervous breakdown because of so much makeup work in swimming.
>
> The Squirrel was excellent in climbing until he developed frustrations in the flying class where his teacher made him start from the ground up, instead of

from the treetop down. He also developed charlie-horses from over exertion and then got a "C" in climbing and a "D" in running.

The Eagle was a problem child and was disciplined severely. In the climbing class he beat all the others to the top of the tree, but insisted on using his own way to get there.

At the end of the year, an abnormal eel that could swim exceedingly well, and also run, climb, and fly a little, had the highest average and was valedictorian.

The Prairie Dogs stayed out of school and fought the tax levy because the administration would not add digging and burrowing to the curriculum. They apprenticed their child to a badger and later joined the groundhogs and gophers to start a successful private school.

Does this fable have a moral?

Today's vocational education is a complicated and increasingly sophisticated business. We're seeking to help students identify and develop their talents, build self-esteem, master complex skills and advanced technology, and learn to live in the world as productive and creative citizens. Good vocational programs emphasize communications skills and include such subjects as history, math and science--and not in watered-down versions. No longer can any educator draw a distinction--it was always false anyway--between education for work and education for life.

Good vocational education is not just job training, it's real, rigorous education in every sense. Good vocational education includes the very essence of useful education: the ability to read quickly, listen carefully, comprehend easily, write clearly and calculate accurately. And when these skills are incorporated with our specific vocational education into a cohesive program, the issue of skill obsolescence is moot.

A major goal of education is to expand the opportunities of students, to provide them with skills and knowledge that will give them a wide range of choices. I think the time has come for us to recognize that secondary vocational education alone is insufficient to meet that goal for a growing proportion of students. Vocational education can no longer be considered education for students who can't make it in college; more and more vo-ed students are in fact continuing their education on the postsecondary level.

Before you all assault me with a lecture about high school dropouts and the holding power of vocational education, I submit that the issue of vocational and general education is not really a question of either/or; it is a matter of integrating the two in an effective way. Moreover, a meaningful articulation between secondary and postsecondary vocational programs would increase, not decrease, the number of people we serve. And finally, I would guess that the actual proportion of vo-ed students with severe learning disabilities is probably under ten percent anyway.

Several months ago a bill known as the "Tech-prep Education Act" was introduced in the Congress. As many of you know, the bill provides for the establishment of grants to consortia of local education agencies and community colleges for the purpose of developing and operating four-year tech-prep programs. These programs would consist of the last two years of secondary school plus two years of higher education, and include a common core of mathematics, science, communications and technologies. The student would graduate with an associate degree in a specific career field.

The bill, whether or not it passes, is a significant event for vocational educators who have long recognized the need for systematic articulations between secondary and postsecondary institutions. The concept of secondary vocational education programs as feeders to postsecondary education is not new. It has a long history, going back to the early sixties, when a number of two-on-two demonstration projects were undertaken, funded originally by the Ford Foundation and later by the Department of Education.

The programs were known by various names--the Richmond Plan, Project Feast, pre-tech, correlated curriculum and dozens of others. Before we begin to reinvent the wheel, I want to suggest a look back at some of these programs. We should be aware that there are curriculum models already available; there have even been follow-up studies of the graduates of such programs, showing that academically and professionally they've achieved as well as traditional students.

I was involved with most of these programs some twenty years ago, and I'm amazed at their continued relevance. The stated purpose was to provide good basic education with primary emphasis on communication, and broad skill training with sufficient flexibility to permit the student a variety of occupational options, through further education at a postsecondary institution or employment after high school graduation. That's not very different from what we're trying to achieve today.

The plan was fully evaluated by the Department of Education and by Stanford Research Associates of California, and its validity was affirmed. It was shown that when properly presented, using interdepartmental team teaching of mathematics, science, English and shop classes, vocational education processes can achieve most of the goals of the traditional college prep courses without diminishing the effectiveness of the secondary vocational program.

Unfortunately, when such programs were originally introduced, the time was not yet right. At the state level, education was organized under a complicated governance structure. A postsecondary vocational program might be under one of several governing bodies, depending on whether it was offered by a community college, a technical institute or a specialized branch of a college or university. Secondary vocational education was generally controlled by directors of vocational education, who reported to state boards of secondary vocational education. When it came to implementing programs connecting secondary with postsecondary education, it was nearly impossible to determine who was running the show--and who should get the funds.

Now we've outgrown those issues; we're much more concerned with the educational issues facing all Americans. And we are more secure in the value and role of vocational education than we were twenty or thirty years ago. Now we're ready to go forward, but first we should take a quick look back. I think the introduction of the tech-prep bill will give us the incentive to re-examine some of those promising programs of twenty or thirty years ago--programs whose time has perhaps finally come.

Of course, the fate of the bill is still uncertain. If it is not passed, that shouldn't keep us from doing what has to be done. We don't have to wait for federal funding, which in any case amounts to only about 6.2 percent of the revenue received by public primary and secondary schools.

Even if the bill is passed, we will have to regard it with a certain degree of caution. Our nation constantly looks for simple solutions to complex problems. Where education is concerned, as everyone here surely knows, this exercise is especially futile. No one model will work in Stillwater, Oklahoma and Brooklyn, New York. Every community will have to determine its own needs and adapt its tech-prep programs accordingly.

And while it's true that some degree of college education will be necessary for most 21st-century workers, not <u>all</u> vocational programs need to be tech-prep programs. A number of remarkable organizations such as the National FFA

Organization and the Distributive Education Clubs of America are already doing an extraordinary job of preparing their members for the future.

Another caution: while I'm glad to note that the bill provides for teacher training, I hope that participants in tech-prep programs appreciate that no such program can succeed without a great deal of teacher training from all participants in the consortia. Among the goals of tech-prep is to help students understand the interrelationships among the various subjects studied in school, but many teachers themselves do not recognize these connections. The auto shop teacher may not know that electrical systems are rooted in Pascal's theorems, or that racing cams are an example of harmonic motion, or that milling a head to increase compression is Boyle's Law in action. Few academic teachers consider the applications of conic sections in wood shop, or the lowest common denominator in home economics, or the chemical and physical changes of metals in welding shop.

There is a real imperative for secondary vocational education to examine the postsecondary institutions with special care. Postsecondary vocational education has expanded rapidly over the past twenty years. Almost two thirds of the students enrolled in our nation's community colleges are enrolled in such programs. More and more high school graduates are seeking opportunities in postsecondary vo-ed, but are not properly prepared for the academic work, although superior in technical skills. These programs are attractive to students--so attractive that they have not suffered the decline in enrollment predicted for higher education, so attractive that in a two-plus-two arrangement they would increase the enrollment at the secondary level.

Equally important are the many connections community colleges have established with industry, and the ease with which they can change course offerings as demand changes. The flexibility in faculty recruitment, the great number of instructional resources available and the private sector relationships all make this case attractive.

Let me call to your attention one last problem with the proposed legislation. The bill states that grant applications will be given special consideration if they provide for effective job placement or transfer of students to four-year baccalaureate programs. It's the latter that worries me. To encourage students to further their education is certainly worthy, but I suspect we'll get little help in that regard from four-year colleges. In my experience, colleges and universities have generally been unwilling to modify their rigid transfer requirements, thus keeping it difficult for students with an associate degree in an

occupational field to enter a baccalaureate program without a significant loss of credits--not to mention self-esteem, when the courses they most enjoyed and did best in are deemed unworthy of transfer. Very likely, baccalaureate-granting institutions will have to be offered special incentives to articulate with community colleges' A.A.S. degree programs. But if we cannot secure the cooperation of four-year colleges, transfer of students to baccalaureate programs should not be a factor in determining the distribution of tech-prep grants.

Despite these quibbles, I think the appearance of the tech-prep legislation is a good omen for the future of vocational education. Regardless of its passage, we should embrace its philosophy. It amounts to a recognition of the role of vo-ed in such crucial matters as improving the nation's productivity and expanding and upgrading the American workforce. It's an acknowledgement that vo-ed can be a potent weapon against our climbing high school dropout rate (now 30 percent in some urban schools) and a positive force in preparing students for a challenging, constantly changing future. With the tech-prep bill, vocational education truly enters the mainstream of American education.

Let me leave you with one final story. As you know, education regularly undergoes periods of enthusiastic reform, when everyone rushes around changing curricula, implementing new programs, discovering innovative teaching materials, and congratulating themselves on the remarkable educational improvements that are undoubtedly on the way. Here's the story.

The Yellow Pages

Harmon and Simon fictitiously describe what happens when a local superintendent prescribes study of the local telephone directory for all seventh grade social studies classes.

After the directories had been distributed, teachers used a variety of strategies for motivating their classes. Of course, the teachers were initially disturbed about introducing these new materials, but the superintendent assured them that he had received a grant from the National Science Foundation to hold a summer institute to provide the teachers with the background necessary to teach the telephone directory.

After the workshop...

The "human relations" type teacher started off his class with: "Boys and girls, we are going to have a exciting new unit this term. As a way of studying our city, we are going through this amazing collection of

information which tells us about the melting pot our city has become."

The more traditional type approached it with: "There will be an examination on this material in February so you'd better learn it."

The "personalizing" teacher's introduction was: "You wouldn't want to hurt my feelings by not memorizing these few names and numbers, would you, children?"

Various homework assignments, teaching aids, objectives and activities were developed during the course of the term and were geared to making the directory "come alive." It was so successful that the project was extended to other grade levels and subject areas.

A former colleague of mine at the Ford Foundation has extended the fiction a bit in order to make another point...

Publishers became interested in the project and textbooks, with teaching manuals, began to hit the market.

Meanwhile, someone had the bright idea of applying to the Ford Foundation for a school-improvement grant.

The first thing they did with all the extra money was to establish team teaching. Those teachers who had the best background in the telephone directory area were responsible for the large group instruction, while the others gave more individualized attention to small groups of learners.

A teaching machine corporation was contracted to supply programmed materials that would help the learner master the names and addresses in small, carefully sequenced steps with immediate reinforcement. Educational television was utilized to bring some of the most dynamic teachers to all the classrooms.

In the midst of all this activity, the national government officially declared war on poverty. This led to the discovery of disadvantaged pupils within school system.

It was noted that while most children were able to get through the H's by the time they were in the fifth grade, the disadvantaged child was still in the C's. Thus, he was about five letters behind in his directory work.

Now the school focused on this problem. It was felt that because the disadvantaged came from a deprived background they were lacking those experiences which could enhance their readiness to learn the directory. A variety of programs was instituted to compensate for these deficiencies.

Field trips were assigned so that the child could

begin to experience the real streets and to associate them with the abstract symbols for those streets in the telephone directory. Parents of the disadvantaged were instructed in how to read a few pages of the directory each night at bedtime to their children.

Through the Yellow Pages attempts were made to illustrate city scenes and people of all races, so that greater identification might take place. Later, however, the Yellow Pages were separated and introduced as part of the vocational program in the secondary schools.

Session 2249

2 + 2 Tech-Prep Associate Degree Program: Program Activities and Support Services

Judith Marmaras
Community College of Rhode Island
Warwick, RI

Over the past three years, the Community College of Rhode Island, in a collaborative effort with the Rhode Island Department of Vocational and Adult Education, has launched a 2 + 2 Tech-Prep Associate Degree Program in 14 high schools in Rhode Island as part of a national effort being promoted by the American Association of Community and Junior Colleges.

Since 1987, the 2 + 2 Program has been administered by a Project Director at the Community College who is responsible for the overall implementation and management of the program. As an academic program, the Director is assisted with program operations by the Vice President for Academic Affairs and an established Advisory Board made up of high school and college faculty and representatives from local business and industry.

The program begins in grade 11 at the secondary level where students enroll in a focused curriculum in science, math and communications - all taught in an applied setting. These courses provide a foundation of basic proficiency skills so that a student will be better prepared to pursue a postsecondary technical training program and subsequently a career in a technical field. The postsecondary programs included in the 2 + 2 Program are Chemical Technology, Computer Science, Engineering, Electronic Engineering Technology, Mechanical Engineering Technology, Electronics, Instrumentation, Machine Design and Machine Processes.

The 2 + 2 Program is aimed at the vast majority of high school students who are enrolled in general education programs. These students are considered most at risk for dropping out of school because they are in an unfocused program of study that prepares them for neither work nor college. Of the 44 million elementary and secondary students in the U.S. today, 12 million will not finish high school and 2/3 of the dropouts will come from the general education population. Today, in any given high school, 43% of the students are enrolled in general education programs.

The 2 + 2 Program provides a realistic and attractive educational continuum which cannot only contribute to our country's labor needs but can also address the dropout problem among our high school youth and help to bridge the gap between vocational skills training and academics at the secondary level.

A critical element in the 2 + 2 Tech-Prep Associate Degree Program in Rhode Island is the curriculum reform that takes place in the high schools because the kinds of students likely to enroll in the 2 + 2 Pragram are those who may not do well in the theoretical college prep courses. They are more likely to respond to an applied curriculum which will prepare them for successful technical careers. Applied curricula in science, math and communications have been developed on a national level by the Center for Occupational Development and Research and the Agency for Instructional Technology, and they are currently being offered as part of the 2 + 2 Program in many high schools around the state.

The first course that was implemented in Rhode Island was the Principles of Technology, an applied physics course that introduces students to the physical principles underlying modern technology as they relate to four energy systems - mechanical, electrical, thermal and fluid. The material is occupationally related and uses a "hands-on" approach to learning. Every high school participating in the 2 + 2 Program in Rhode Island has added the Principles of Technology to their existing science programs and every student who is in the 2 + 2 Program is required to take the Principles of Technology in Grades 11 and 12. Successful completion of the Principles of Technology is one of the criteria for guaranteed acceptance into the technical programs at the Community College. Other criteria include proficiency in math and communication as determined by Math and English Placement Tests administered to students entering the Community College.

Like the Principles of Technology, Applied Math and Applied Communications courses have been developed and implemented in many high schools offering the 2 + 2 Program. Although students in the 2 + 2 Program are not required to enroll in these two courses they must take math in grades 11 and 12 and demonstrate proficiency in oral and written communications. Because these courses use practical application as an integral means of instruction and a "hands-on" approach like the Principles of Technology, they can be used as viable alternatives to traditional English and Math courses. These courses combined with Principles of Technology provide students with a meaningful program of study that relates academics to everyday experiences and uses practical application as an integral means of instruction.

Implementation of this curriculum is instrumental in preparing students to enter an upgraded workforce. Because the courses are occupationally related, they help students see the importance of education as it relates to the actual world of work.

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In addition to the applied curriculum, career development programs and related support services are integral parts of the 2 + 2 Tech-Prep Associate Degree Program and play an important role in the academic and personal development of the students. These activities bring together high school teachers, Community College faculty and staff and members of the business community in a partnership effort to help increase students' awareness of the educational and career opportunities in technical fields such as Chemical Technology and Electrical Engineering Technology and increase their options and decision making power upon graduation from high school.

Throughout the school year, many regularly scheduled activities take place that utilize the resources at the Community College and in the business community. High school students contemplating enrolling in the 2 + 2 Program are afforded an opportunity to visit the Community College any time during their sophomore year to learn about the program and related career opportunities. Once enrolled in the 2 + 2 Program, high school students visit the Community College on several occasions to learn first-hand about the technical programs offered at the college and to become more familiar and comfortable with the idea of post-secondary education and training.

The first 2 + 2 Program visit to the Community College is scheduled in the fall of each year to provide students with a general overview of all of the technical programs that are offered and to afford them an opportunity to meet with faculty. At that time, faculty talk with students about the kinds of courses that they should be taking while in high school to prepare for these technical programs and discuss the courses that students would take at the postsecondary level as well. They also provide students with information about career opportunities in each technical area. At the same time, students complete an interest assessment and are encouraged to begin to determine which career fields best fit their interests and abilities.

In the early spring, students return to the Community College for a full day of more extensive activity which includes "hands-on" experience in several of the technical labs and meetings with representatives from business and industry. Through a cooperative effort with the Warwick Chamber of Commerce and the Warwick Rotary Club, employers representing all of the technical fields addressed in the 2 + 2 Program are invited to spend the day at the college to provide students with information about job opportunities in the technical field and the education and skill training needed to access these careers. Meeting with employers helps students to see the importance of education and training in today's technological society and helps them to better understand what they need to do to prepare for and secure gainful employment. In addition to these two group activities, 2 + 2 Program students also participate in a shadowing program during their senior year of high school where they spend a day at the Community College with students who are enrolled in the technical programs. All of these career development programs help to prepare students to make informed and viable educational and career decisions.

In addition to the partnerships that have developed between the Community College and participating high schools in the state, a partnership between business and education has developed over the past three years as a result of the 2 + 2 Program. The Warwick Chamber of Commerce and the Warwick Rotary Club in cooperation with the 2 + 2 Program have developed a four step career awareness program that brings students, educators and business people together in a number of different activities.

First, a speakers' bureau has been established. At the beginning of each school year, high school teachers receive a list of the names and occupations of individuals in the business community who would be willing to make a presentation to 2 + 2 Program students at their high school about the type of work their companies do, the types of employees that they look for, the job duties and responsibilities of technicians in their field and the skills and education needed to find employment in their particular occupation.

Second, a resource guide has been developed that lists businesses in the community that would welcome student field trips. The resource guide contains the name of each business, the nature of that business, available job opportunities specifically in technical areas and a contact person who will arrange for the field trip. These visits provide students with an opportunity to see a number of jobs "in action" and to meet and talk with people in careers that might interest them.

The third and most exciting component of this project is a mentoring program that has been developed in two communities in Rhode Island by Chambers of Commerce and Rotary Clubs. The mentoring program is designed to provide students with positive adult role models, guidance, support and exposure to career opportunities in a given field. Members of the Warwick Rotary Club and other successful business people from Warwick and Woonsocket have volunteered to mentor those 2 + 2 Program students who could benefit from this type of support service and work with them in a one to one relationship to establish a feeling of positive reinforcement and encouragement, to encourage decision-making in life situations and to develop positive attitudes about school, the educational system as a whole and lifelong learning concepts.

Students are recruited for the mentoring program by their high school teachers and guidance counselors. They are asked to complete an interest assessment as well as an application form that requires parental consent. Mentors are also asked to complete an application form and interest survey and to attend a general orientation and training session. Each student is matched with a mentor by a committee composed of high school teachers, 2 + 2 Program staff and members of the Chamber of Commerce and Rotary using a combination of questionnaires, interest surveys, personal interviews and educational/career plans of the students. Once the mentors and students have been matched, an informal reception is scheduled to

introduce mentors to students and to outline the goals and objectives of the program. At that time, the mentors and students determine a schedule to meet on a regular but informal basis.

The fourth and final activity in this four-phased career awareness program is an internship program for 2 + 2 Program high school students that allows them to work during the summer of their senior year in career fields within their interest areas. Internships provide students with an opportunity to learn about and gain experience in the many different jobs that comprise a particular technical industry today and to learn how each job relates to other positions.

Students who successfully complete the first half of the 2 + 2 Program are guaranteed acceptance into any of the nine technical programs at the Community College of Rhode Island and have a number of support services available to them at the postsecondary level. Students can participate in the college's cooperative education program. Cooperative education at the Community College involves 2 + 2 students in productive employment while working towards a degree. Students work in positions related to their major field of study at the college, allowing them to observe and participate in specific employment situations. These experiences help students to learn more about a particular occupation as well as to clarify career goals.

As part of the cooperative education experience, students participate in a seminar that focuses on self discovery, occupational/job analysis, communication styles and career development and are concurrently enrolled in a supervised work experience. While working, they earn competitive wages in positions related to their academic major. College faculty help them to integrate classroom learning and the world of work. Credit is awarded for successful completion of the Cooperative Work Experience and related academic requirements.

The Community College also provides 2 + 2 Program students with job placement services upon completion of their program of study. Job placement for graduates of the technical programs is very high, and graduates are placed in positions as mid-level technicians with salaries that range from $18,000 - 23,000 to start.

The success of 2 + 2 depends on cooperation and ongoing communication between the high schools and the Community College. An Advisory Board made up of high school and college faculty, counselors and administrators provides the vehicle to maintain these lines of communication. Meetings are scheduled regularly during the year to afford board members an opportunity to discuss the program's strengths and weaknesses, to determine and outline program objectives and to develop and implement new program activities. The Project Director also visits the high schools to meet with the teachers and address the individual needs of each school system.

Inservice workshops are scheduled for high school and community college faculty as well. Each year, the 2 + 2 Program conducts a three-day workshop for high school science teachers that focuses on techniques and strategies for teaching the Principles of Technology. Teachers receive one college credit in physics for successful completion of this training that can be used for teacher certification update or renewal. Inservice workshops are also offered in Applied Mathematics and Applied Communications.

Other workshops, seminars and awareness conferences are scheduled during the school year that address a number of current educational and program issues.

The 2 + 2 Tech-Prep Associate Degree Program is designed to function as a high school, community college, business partnership program with benefits for everyone involved. It gives the high schools an opportunity to offer a meaningful educational alternative for the student who might otherwise become one of the growing number of students who drop out of school every year. The students who come to the Community College after completing the first two years in the Tech-Prep program will be academically prepared to enter a technical program at the college level and successfully complete an associate degree program. Finally, employers will gain a better prepared workforce that can adapt to the ever-changing demands of a technological society.

Although the 2 + 2 Program is not a quick solution to existing economic problems, it is a methodical ongoing partnership effort to address the problem of retention and to provide students with the technical and academic skill training needed to be productive and self-sufficient members of society. The 2 + 2 Program is aimed at preparing students to meet the challenge of employment in a technological economy and to become a part of a technologically competitive workforce.

Establishing a 2 + 2 Tech-Prep Program requires the support and commitment of educational administrators, both at the secondary and postsecondary levels, high school and college faculty, guidance counselors and legislators. A plan for development and implementation of a 2 + 2 Program should include: 1) organizing awareness conferences for high school superintendents, principals, guidance counselors, teachers and community college faculty and administration; 2) establishing a joint curriculum committee comprised of key high school instructors as well as college instructors to develop a curriculum and model program that would satisfy the needs of the students; and 3) designating a person to serve as Program Director to maintain the program, establish contacts in the participating high schools and with local business and industry, and to ensure that communication between the high schools and the Community College continues on an ongoing basis. 2 + 2 Tech-Prep workshops cosponsored by the Center for Occupational Development and Research, the American Associate of State Directors of Junior College and National Associate of State Directors of Vocational Technical Education Consortium are being conducted at various locations around the country to assist with the successful development of 2 + 2 articulation programs.

Judith Marmaras

Director of a statewide 2 + 2 Tech. Prep. Associate Degree Program at the Community College of Rhode Island.

Previously developed and coordinated a reentry college program for single parents at the Community College, coordinated annual summer youth enrichment/employment programs and taught in the public school system, both elementary and secondary levels as well as a statewide adult education program.

Bachelor of Arts, Master of Arts from Rhode Island College

Technology Education Partnerships: Arkansas Articulation

Dr. Dale E. Thompson
Marsha Brown
Dr. Cecelia Thompson
The University of Arkansas
Department of Vocational Education
College of Education
Fayetteville, Arkansas

December 5, 1989
American Vocational Education Conference
Orlando, Florida

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Technology Education Partnerships: Arkansas Articulation

Educational reform in Arkansas has resulted in standardized curriculum for vocational, technical, and technology education. This standardization, based on competency identification specific to each subject matter area, resulted in the development of course content guides with basic, developmental, and extension skills. Since the content guides specify what is to be taught in each course, there was a need to coordinate courses between the secondary and post secondary level so that duplication of course content did not occur. The process, developed at the University of Arkansas to supervise this coordination is called the Arkansas Articulation Program.

Articulation in this case is defined as the systematic coordination of course and program content within and between educational institutions to facilitate the continuous efficient progress of students from grade to grade, school to school, and from school to the world of work. The purpose of the articulation project is to shorten the technology and vocational training process by eliminating duplications of course work and to strengthen the curriculum in order to provide students with advanced technical skills, occupational curriculum coordination across secondary and post secondary levels so that schools may improve and retain programs as well as better serve students, employees, and the community.

The method by which the articulation program will achieve its purpose is through the formation of partnerships between secondary and post secondary technology educators allowing for a smooth transition through educational levels. The schools involved in the partnerships include comprehensive high schools, vocational high schools, post secondary vocational technical schools, community colleges, and four year colleges and universities.

The articulation process has four phases. Phase one begins with the identification of schools to participate in articulation. Schools offering the most vocational/technology subjects are selected first. These schools are divided into regions and assigned to a local articulation coordinator. These coordinators, employed by a centrally located post secondary institution within each region of the state, contact the major administrator at each school to determine if they are interested in becoming actively involved in articulation. Those interested school administrators appoint a high ranking school official (superintendent, principal, counselor, dean of institution, supervisor of instruction, etc.) to a regional articulation advisory committee. The advisory committee meets to discuss technology areas common to each school. In order to keep the articulation process from becoming difficult to work with, the committee selects three technology subject matter areas as targets for articulation.

Phase two begins at this time. The administrators form an articulation "task force" made up of classroom instructors from each of the target technology areas selected. The task force members meet to review course content guides, competency profiles, and course syllabi to determine common areas taught at each school level. For example, the drafting technology teachers at a high school, post secondary vocational technical school, and four year university may discover that they all teach the same beginning lettering skills. When this type of duplication is identified, the task force members proceed to develop an articulation agreement so that as students move from one level of education to the next, they will not be required to re-learn or spend time covering course content in which they are already competent.

When the task force develops an agreement they select from three basic types. The first is "direct credit transfer". This is where a student merely transfers credit for a course to another institution which accepts the credit. The second, "advanced placement standings", is used when students are involved in competency based education. Students who have developed skills through a competency based program and can prove they are competent may skip a beginning level course by receiving advanced placement in the next program they move to. For example, the high school student who is competent in lettering will skip the post

secondary lettering course and start at an advanced course level.

The third and final type of agreement is the "credit by examination" method. This allows students to take an examination to receive course credit and thus avoid duplication of courses.

Once the task force members agree upon the type of agreement to formulate for the course, specific criteria are worked out. These criteria usually involve conditions and procedures which must be followed by students, instructors, and each institution when involved in one of the agreements. These conditions and procedures vary according to the type of agreement used. When the direct credit transfer method is used the only condition involved is that both institutions must be accredited. Examples of conditions and procedures used with the advanced placement standing method are:

1. Participating instructors will teach from the list of competencies (task list) based on job task requirements.
2. Recommendations for advanced placement standings should be made by the classroom instructor and school administrator.
3. Student application for advanced placement standing must be made within 12 months of completion of a course or graduation from high school.
4. Application for advanced placement must be completed prior to registration deadlines.

Examples of criteria which must be met for students to receive credit by examination are:

1. The test instrument should be designed and administered by the intaking institution.

2. Nominal fees may be charged to cover test administration.

3. Application for credit by examination must be completed prior to registration deadlines.

4. It should be the responsibility of the intaking institution to maintain the students' permanent records.

Phase three of the process begins once the articulation agreements are written by the task force. This phase involves meetings of administrators, teachers, and counselors from each school involved in each agreement. This group reviews agreements for workability, and if all is in order, they sign the agreement and put them into effect at the local school level (See appendix 1).

The final phase involves the implementation of the articulation agreement. This phase includes the process of informing counselors, teachers, and students that articulation agreements are available. At this time, agreements and procedures are explained so that students at each local school can participate in articulation. In order to participate in articulation, a student must fill out an application (see appendix 2) with the help of their teacher and counselor and send it to the appropriate instructor. If all criteria are met, the student then moves to the next level of education.

After the agreements are written, in place, and operational, the process begins all over again. New subjects and new schools are involved in the process. At

the current time the articulation program has finished its fourth year. There are four basic technology programs involved, drafting, electronics, computers, and welding. There are 82 agreements involving these 4 areas. The specific break down is as follows: 42 agreements in electronics/electricity, 19 agreements in drafting, 13 agreements in welding, and 8 agreements in the computer area.

The following is a sample of an agreement which was written through the articulation process.

WELDING
ARTICULATION AGREEMENT BETWEEN
_____ HIGH SCHOOL
AND
_____ VOCATIONAL TECHNICAL SCHOOL
AT _____, ARKANSAS

I. ADVANCED PLACEMENT STANDING

_____ Vocational-Technical School has agreed to grant advanced placement standing to students for the following courses:

course number	course name	credit hours
WLD 1106	Introduction to Welding	6
WLD 1103	Position Welding	3

The following criteria must be met in order for the students to receive advanced placement standing:

A. Participating instructors will teach from the list of competencies (task list) based on job task requirements.

B. Recommendation for advance placement standing should be made by the classroom instructor and school administrator.

C. Student shall complete designated courses at _____ School and will meet or exceed the objectives listed in the student competency profile * in order to be recommended for advanced placement.

D. There will be no charge for advanced placement standing transfer.

E. Application for advanced placement must be completed prior to registration deadlines.

*The student competency profile is scored on the following scale:

3 - Exceeds performance objectives

2 - Meets performance objectives

1 - Does not meet performance objectives

0 - No exposure

II. Credit by Examination

Credit for the following courses may be earned at Vocational-Technical School by achieving a passing score on an examination for credit:

course number	course name	maximum credit allowed	name of exam	minimum score for credit
WLD 1106	INTRO TO WELDING	6	Instructor made	85%
WLD 1103	POSITION WELDING	3	Instructor made	85%

The following criteria must be met for students to receive credit by examination:

A. The test instrument should be designed and administered by the intaking institution.

B. Application for credit by examination must be completed prior to registration deadlines.

C. It should be the responsibility of the intaking institution to maintain the student's permanent records.

III. GENERAL PROCEDURES

A. All articulating students shall meet and maintain the prerequisites and academic standards of the intaking institution and the intended program of study.

B. Articulated credit will become a part of the student's permanent record at the intaking institution.

C. Designated representatives from each institution will attend a meeting schedules prior to the beginning of each academic year and review each course and amend, as necessary, the competencies, evaluation system, recording forms, and competency measures to establish the levels of competency.

D. Appropriate faculty and administrators from participating institutions will have orientation in the articulation process described herein.

E. As new courses are offered or existing courses revised at either level of education, articulation efforts will be explored and implemented where feasible.

F. This agreement shall continue in full force and effect unless either party notifies the other in writing of cancellation within 6 months prior to the date of cancellation.

_____
_____, Principal
_____ High School

_____
_____, Director
_____ Vo Tech School

Application for Advanced Placement
(credit by transfer or examination)

SOURCE INSTITUTION _____

ACCEPTING INSTITUTION _____

Student's Name _____
Last First Middle

Address _____
Number and Street City State Zip

Social Security Number _____ Date _____ Telephone No. _____

High School _____ Year of Graduation _____

This certifies that the above-named student has satisfactorily met all performance standards outlined in the _____ Program and is recommended for advanced placement/credit in the following _____ course(s):

COURSE NUMBER	COURSE TITLE	TRANSFER CREDIT HOURS	EXAM CREDIT HOURS
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Signatures: _____ _____
Instructor (Source Institution) Date

_____ _____
Counselor (Source Institution) Date

HIGH SCHOOL COUNSELORS

1. PLEASE SIGN AND ATTACH THIS FORM TO the Admissions Application.
2. Attach competency profile and/or transcript.
3. RETAIN A COPY OF THIS FORM.
4. Mail to Accepting Institution:

   School _____

   Street _____

   City _____

FOR OFFICE USE ONLY

Course Title Number Hours

_____

_____

_____

Approved:

_____
Administrator/Instructor

Program Area _____

Date _____

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TITLE ***Articulation Assistance for Columbus State Community College. Add-on Task #2: Pre-Tech for Allied Health. Final Report.***

DATE 87

AUTHOR Goff, S. Judith, and Others

DEVELOPER Columbus State Community College, OH

AVAILABILITY For a microfiche copy of this document order ED284985 from ERIC.

ANNOTATION This guide is intended for use in helping high school and entry-level community college students in acquiring the practical science skills necessary to ensure successful completion of an associate-level allied health program. The guide was originally developed to provide an articulation model for high school students interested in entering the medical laboratory technology program at Columbus State Community College. Included in the guide are outlines for instructional units on the following topics: the practical sciences and health careers; science and the scientific method; basic laboratory procedures; measurement of matter; matter and energy; atomic structure; chemical formulas and bonding; water and organic compounds; basic chemical reactions; chemical solutions; acids and bases; acids and bases in solutions; structure and function of the cell; cellular activities; cell division; genetics; introduction to the human body; the framework of the human body; the human endocrine, reproductive, and excretory systems; the circulatory, cardiovascular, nervous, digestive, and excretory systems; interdependent systems of the body; and human relations in allied health and science careers. Recommendations for recruiting students, selecting instructors, planning programs, assessing and grading students, and selecting equipment and facilities are also provided. (MN)

FORMAT Guide; 44p.

TITLE ***Articulation in Secondary and Postsecondary Occupational Education: Final Report.***

DATE 86

AUTHOR Fadale, Lorraine M., and Others

DEVELOPER New York State Education Department, Albany. Bureau of Grants Administration.

AVAILABILITY For a microfiche copy of this document order ED268007 from ERIC.

ANNOTATION A study was conducted of formal occupational education articulation agreements between secondary and postsecondary institutions in New York State. Specifically, the study investigated the administration of agreements; the characteristics, goals, and length of time of agreements; benefits, problems and barriers; costs; and characteristics associated with successful efforts. The study involved a statewide survey of 59 two-year colleges and 52 secondary institutions, requesting information on existing or upcoming agreements; and on-site visits and consultations at 10 two-year colleges and seven secondary schools. Study findings, based on responses from 45 two-year colleges and 37 secondary schools, included the following: (1) 60% of the two-year colleges and 76% of the secondary schools reported having one or more articulation agreements; (2) the respondents identified 73 district agreements; (3) program coordinators indicated that contact was made with their counterparts at the cooperating institution once a semester; (4) advanced placement was the most common feature of the articulation agreements; (5) the most frequently reported objectives at both the secondary and postsecondary levels dealt with advanced placement/credit and access to college programs; and (6) the career programs most frequently identified as part of an articulated agreement were nursing, data processing, drafting, electrical technology, and automotive technology. The study report includes a sample of the questionnaire packet and a schematic of reported agreements. (AYC)

FORMAT Research Report; 72p.

TITLE ***Articulation Models and Systems: High School to Community Colleges and Community Colleges to Four Year Institutions.***

DATE 87

AUTHOR Ughetto, Richard; Hoerner, James L.

DEVELOPER Virginia State Department of Community Colleges, Richmond.

ANNOTATION This paper examines models of community college articulation with high schools and four-year institutions as examples of the facilitation of student transfer at the different levels. The first sections of the paper describe four programs to enhance high school to community college articulation: (1) Sacramento City College (California) and the Sacramento City Unified School District's formation of an Articulation Council to address the problems of underprepared students and eliminate unnecessary duplication of effort; (2) Clark County Community College (Nevada) and the Clark County School District's development of a comprehensive and cooperative partnership to coordinate academic and occupational programs; (3) Cuyahoga Community College's (Ohio) Center for Articulation and Transfer Opportunities; and (4) Thomas Nelson Community College's (Virginia) Secondary/Postsecondary Program to Prepare Master Technicians in Virginia. Next, three models of two-year/four-year college articulation are presented, including the policies and mechanisms used to facilitate transfer from the University of Nevada's community colleges to its four-year campuses; California's articulation plan to promote transfer between community colleges and the state universities and colleges; and Nashville Technical Institute's involvement in an Advanced Technology Articulation Demonstration Project. Concluding comments underscore the importance of upper-level leadership and commitment, faculty involvement, mutual benefit, open and formal communication, and competency-based curricula. (MDB)

FORMAT Project Description; 29p.

TITLE ***The Community College-High School Connection. Report of the Annual National Convention of the American Association of Community and Junior Colleges (66th, Orlando, FL, April 13-16, 1986).***

DATE 86

AUTHOR Henderson, James C., and Others

AVAILABILITY For a microfiche copy of this document order ED267855 from ERIC.

ANNOTATION An overview is provided of the efforts initiated by San Juan College (SJC) to improve articulation with local high schools. Following introductory remarks describing SJC and its service area, information is presented on SJC's yearly in-service training day for 1,500 county educators, including a list of workshops presented

during the 1984 program. Next, a description is presented of the Area Vocational School partnership, a program whereby high school juniors and seniors have the opportunity to enroll in vocational-technical programs at SJC. This description includes an outline of enrollment provisions, and a list of programs and equivalent courses. Next, the benefits of community college-high school articulation programs are reviewed, and SJC's development of articulation agreements with secondary and postsecondary institutions is explored. Curriculum outlines are presented for articulated high school-community college programs in office careers and drafting and design technology. Next, a section on special services for students describes the Guidance Connection, a yearly conference hosted by San Juan College to improve communication and cooperation among guidance personnel, the career testing of secondary students, SJC's early admissions program for outstanding high school students, and the summer high school program. Additional examples of community college-high school connections are presented in the next section, including efforts to coordinate the public schools and college's calendar, meetings between the four county superintendents and SJC's president, and a textbook adoption center. Finally, a description is provided of one of SJC's two off-campus centers, the Aztec Community Education Center, along with information derived from a community survey assessing educational needs. (LAL)

FORMAT: Conference Paper; Project Description; Conference Proceedings; 42p.

TITLE: ***Competencies for Articulation. Introduction to Visual Media. Final Report.***

DATE: 85

AUTHOR: McFadden, Mary Ellen

DEVELOPER: Washington State Commission for Vocational Education, Olympia.

AVAILABILITY: For a microfiche copy of this document order ED269630 from FEIS.

ANNOTATION: This project was conducted to create visual-media technology competencies for articulation in order to (1) provide a basis from which to assess similar instructional efforts at other vocational and prevocational institutions; (2) provide a detailed listing of competencies required by Spokane Falls Community College (Washington) for instructors teaching at other institutions; (3) provide equal assessment of all students transferring into the visual-media technology program; and (4) provide an objective method of assessing students' prior experience. After meeting with local prevocational training program instructors, the developer examined their programs, identified similarities, and then established the competencies needed by persons who have finished a two-year college program in visual-media technology. The result of the project (contained in this document) was the development of a detailed listing of competencies for introduction to visual media and the method for measuring mastery of those competencies. The program contains ten competencies. Each competency consists of a task, directions, standards for acceptable performance, test items, and a teacher's key. An individual student record is also included in the packet. (KC)

FORMAT: Project Description; Teaching Guide; 43p.

TITLE: ***Competencies Needed for Articulation among and between Post-Secondary Vocational Food Technology Programs in Texas.***

DATE: 85

AUTHOR: Glosson, Linda R.; Schrock, Jay R.

DEVELOPER: Texas Education Agency, Austin. Department of Occupational Education and Technology.

AVAILABILITY: For a microfiche copy of this document order ED266262 from FEIS.

ANNOTATION: A study examined the competencies needed for articulation among and between postsecondary vocational food technology programs in Texas. A two-round Delphi survey was used to collect data from the instructors and coordinators of food service programs in Texas postsecondary institutions during the 1984-85 school year. Thirty-five of the 71 persons (52 percent) who were asked to participate in the first round completed questionnaires; all of these 35 individuals completed second round questionnaires. A consensus of 70 percent or more was reached on 208 of the 223 items on the Delphi questionnaire. Subcompetencies not reaching consensus were not contingent on the educational level, type of degree held, major area of study while in school, years of teaching experience, or years of food service experience. Eight of the 18 subcompetencies on which no consensus was reached were related to teaching in the area of restaurant management. (Appendices include a select bibliography, 20 tables, the questionnaires used in each round of the survey, survey-related correspondence, and means and percentages for competencies and subcompetencies.) (MN)

FORMAT: Research Report; Test; Questionnaire; 117p.

TITLE: ***A Comprehensive Strategy to Examine and Address Transfer Education.***

DATE: 86

AUTHOR: Rendon, Laura I.

AVAILABILITY: For a microfiche copy of this document order ED270191 from FEIS.

ANNOTATION: This paper examines major transfer education issues and proposes a comprehensive strategy for examining and improving transfer education. The first section explores ten major issues: (1) access to higher education for minorities and low socioeconomic status (SES) whites continues to be a problem; (2) over 50% of all entering community college students have goals related to attaining a baccalaureate; (3) students who complete two years in a community college may be expected to perform reasonably well at a senior institution; (4) no one educational sector can solve the transfer problem alone; (5) occupational students, especially those in allied health, engineering technology, data processing, agriculture, and forestry programs, transfer in sizeable numbers; (6) faculty/student contact is one of the most important determinants of student retention; (7) giving students the right to fail simply has not worked; (8) literacy demands placed on community college students have decreased; (9) concerted efforts to address transfer education involving collaboration between two- and four-year colleges have achieved promising results; and (10) when community colleges fail to collect information and data, they lose out on a valuable opportunity to make modifications to improve their curricular and student support services. The next section describes a comprehensive transfer strategy, stressing that every constituency and educa-

tional sector must be involved in improving transfer education, and detailing the tasks to be undertaken by high schools, community colleges, senior institutions, and state agencies in a cooperative and collaborative effort to ensure that the nation's minority and low SES students enjoy full access to higher education. (RO)

FORMAT Position Paper; Conference Paper; 23p

TITLE ***Cooperative Electronics Program Credit.***

DATE 88

AUTHOR Johnson, Wayne

AVAILABILITY For a microfiche copy of this document order ED301684 from FEIS

ANNOTATION The Cooperative Electronics Program was developed through the joint efforts of Linn-Benton Community College (LBCC), West Albany High, and Lebanon High, all of which are in the Linn-Benton Education Service District serving Albany, Oregon. The project, which was undertaken in the spring of 1988, is intended to result in a program whereby high school electronics students can receive advanced placement credits for work completed toward an Associate of Science degree in electronics technology at LBCC. Since the project's inception, the first course in the LBCC electronics program has been redesigned. This program description represents a sample of the work completed for the cooperative electronics program. The following materials are included: a statement of the program goals; course guidelines; an outline of the major objectives addressed in the program's course in the fundamentals of electronics; an outline of the course's six units; general laboratory report directions and a report outline; a student activity on balanced bridges; terminology for Unit 1; and the unit test for Unit 1. (MN)

FORMAT Teaching Guide; 76p

TITLE ***Coordination of Occupational/Vocational Education.***

DATE 89

AVAILABILITY For a microfiche copy of this document order ED310790 from FEIS

ANNOTATION This document represents the sixth update of the five-year plan adopted by the Maricopa County Vocational Education Planning Council in 1985 to coordinate secondary, postsecondary, and university-level vocational education. Introductory sections provide background information on the council and briefly describe its planning assumptions with respect to technological, financial, demographic, and economic trends. Next, a brief progress report for fiscal year (FY) 1988-89 is provided on the Council's eight main goals: horizontal and vertical articulation of vocational education programs; the coordination of public and private vocational education; the use of labor market information in planning; the enhancement of student retention and dropout prevention efforts; the enhancement of employability skills instruction; the establishment of new partnerships with business and industry; the acceptance of vocational courses for academic credit; and the dissemination and use in the county of Council planning guides, such as "To the Future." Finally, goals and recommendations are presented for FY 1989-90. The bulk of the report consists of extensive appendices, providing: (1) a more detailed report of the progress made on each of the Council's eight goals during 1988-89 by individual school districts; (2) a description of the revised course credit articulation procedures and the status of high school to community college articulation in the county; (3) a table ranking current and projected occupational employment and demand in the county; (4) a directory of Council members; and (5) an inventory of county occupational programs. (JMC)

FORMAT Project Description; 78p

TITLE ***Developing a Technology Articulation Program: The Need for Articulation.***

DATE 86

AUTHOR McNutt, Anne

AVAILABILITY For a microfiche copy of this document order ED281582 from FEIS

ANNOTATION Nashville State Technical Institute is currently involved in an Advanced Technology Articulation Demonstration Project, a collaborative effort with Tennessee State University (TSU), two local high schools, the Tennessee Valley Authority (TVA), the Center for Occupational Research and Development (CORD), and the State Department of Education. The various cooperating agencies are each responsible for certain aspects of the project. Serving as the coordinator of the project, Nashville Tech: (1) formulated an industrial advisory group to review program articulation and advise on competencies to be taught; (2) entered into an articulation agreement with the two local school systems, identified the two high schools to be included in the project, and assisted in the implementation of a CORD-developed Principles of Technology course at the two schools; (3) developed an Advanced Principles of Technology laboratory with TVA funding; and (4) in cooperation with CORD and the State Department of Education, provided training in advanced technology to high school instructors. The two local school systems implemented the Principles of Technology course, developed a hands-on laboratory, selected instructional staff for training, and arranged for counselor orientation. TSU's role was primarily in the area of project evaluation, while CORD's main function was to advise on the implementation of the Principles of Technology course. Project funding came from the TVA and State Department of Education. The first year of the program has convinced both faculty and administrators at Nashville Tech that the project is beneficial. Course outlines are appended. (AYC)

FORMAT Project Description; Conference Paper; 15p

TITLE ***Directory of Colleges and Universities Granting Credits for Attainment of Rating as Certified Professional Secretary.***

DATE 89

AVAILABILITY For a microfiche copy of this document order ED318909 from FEIS

ANNOTATION The American Council on Education recommends that those who have attained the Certified Professional Secretary rating (CPS) and enroll in degree programs be granted 32 semester hours of academic credit. This document identifies the six areas (behavioral science in business, business law, economics and management, accounting, office administration and communication, and office technology) in which this credit is to be granted. The bulk of the document is a state-by-state listing of colleges and universities granting credits for the attainment of the rating as a CPS. Each entry provides the

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name of the educational institution, its address and the number of credits it will grant toward what kind of degree. Many of the entries also indicate the date on which the information was provided. (CML)

FORMAT Directory, 13p

TITLE ***Electronic Technology Curriculum Development and Program Articulation. Final Report.***

AUTHOR Dunlap, William S., and Others

DEVELOPER Kansas State Department of Education, Topeka. Division of Community Colleges and Vocational Education.

AVAILABILITY For a microfiche copy of this document order ED260296 from FEIS.

ANNOTATION A project was conducted at Washburn University to develop full curriculum materials for the first-year courses in an electronic maintenance technology program. The courses were articulated with a local high school. The curriculum materials were developed, pilot tested, and refined. The bulk of the report consists of the curriculum materials for these four courses: The Maintenance of Electronic Systems, Solid State Electronics, Digital Electronic Circuit Fundamentals I, and Basic Electronics. Included in the curriculum materials are course syllabuses, information sheets, assignment sheets, quizzes, and unit examinations. Materials are illustrated with line drawings. (KC)

FORMAT Teaching Guide; Project Description; 380p.

TITLE ***Enabling Professionalism: The Master Technician Program.***

AUTHOR Wimmer, Doris K.

JOURNAL New Directions for Community Colleges; v16 n3 p95-100 Fall 1988

ANNOTATION Describes Virginia's Master Technician Program, which offers a comprehensive coordinated curriculum in electronics/electromechanical technology that spans high school and community college levels of instruction. Highlights innovations of the project, curriculum design, advantages, and future projections. (DMM)

TITLE ***Enhancing Articulation and Transfer. New Directions for Community Colleges, Number 61.***

DATE 88

AUTHOR Prager, Carolyn, Ed.

JOURNAL New Directions for Community Colleges; v16 n1 Spr 1988

DEVELOPER Office of Educational Research and Improvement (ED), Washington, DC.

AVAILABILITY For a microfiche copy of this document order ED291451 from FEIS.

ANNOTATION This collection of essays offers a variety of perspectives on academic and procedural aspects of transfer and articulation activities. The volume includes articles on state, regional, and foundation-sponsored efforts to improve transfer processes, as well as essays concerned with programs to create vehicles and channels for interinstitutional faculty contact. The following articles are presented: (1) "Articulation and Dual Admissions," by Kenneth B. Woodbury, Jr.; (2) "Articulation Florida Style," by Robert S. Palinchak; (3) "Transferability in the Liberal Arts and Sciences," by Dympna Bowles; (4) "The Crucial Role of Faculty in Transfer Articulation," by Renee Berger and Aida M. Ortiz Ruiz; (5) "Transfer Relationships between Two-Year and Four-Year Technological Programs," by Gary Thomas; (6) "Accreditation and Articulation of Business Programs," by Mary Robertson-Smith; (7) "Winning Together: Negotiating Transfer Agreements in Allied Health," by Elizabeth C. King; (8) "An Information-Driven Articulation Model," by Richard D. McCrary; (9) "The Other Transfer Degree," by Carolyn Prager; and (10) "Sources and Information: Policy and Practice in Articulation and Transfer," by Anita Y. Colby and Mary P. Hardy. (EJV)

FORMAT Project Description; 107p.

TITLE ***Focus on Student Achievement: School and College Partnership.***

DATE 89.

AUTHOR Beckley, Larry, and Others

AVAILABILITY For a microfiche copy of this document order ED307955 from FEIS.

ANNOTATION Recognizing the importance of strong working relationships with local high schools, Triton College (Illinois) has recently developed a series of initiatives which provide an ongoing avenue for students to experience Triton's programs and services while still in high school and thereby facilitate continuity of learning. One group of programs, focusing primarily on dropout prevention and intervention, includes: (1) the High School/College Partnership, which provides summer enrichment programs, after-school and summer jobs, tutoring, career exploration, recognition awards, and a tracking system for high-risk youth; (2) opportunities for dropouts to complete high school course work at Triton through the Alternative High School, Evening High School, and Adult High School; and (3) a cooperative English-as-a-Second-Language Program. A second set of programs focuses on serving gifted and talented students. Triton's Scholars Program, which is designed as a "college within a college," offers courses modeled on those of prestigious colleges and universities, heavily utilizes guest lecturers, and provides scholarships. In addition, academically talented students who qualify for advanced placement have the opportunity to take several courses for college credit in their senior year. A third project is the Student Post-Secondary Plan, which seeks to make the 13th year of schooling as routine as the previous 12 through a rigorous program of assessment and counseling. Triton's most recent initiative is the Regional Vocational Articulation Project. In fall 1989, twelve articulated 2 + 2/prep-tech programs will be in place in business, industrial technology, and home economics. (JMC)

FORMAT Project Description; Conference Paper; 10p.

TITLE ***Getting To Know You: The Secondary-Postsecondary Connection. A Guidebook for High School, Community College and Vocational-Technical Institute Staff in the State of Washington.***

DATE 88

AUTHOR McClure, Larry, and Others

DEVELOPER Washington State Board for Vocational Education, Olympia.

AVAILABILITY For a microfiche copy of this document order ED300066 from FEIS.

ANNOTATION Designed as a report of current articulation programs between high schools and two-year col-

leges in Washington State and as a stimulus for increased articulation, this guidebook outlines the principles underpinning successful programs, suggests steps to be taken, and responds to commonly asked questions. Introductory comments explain the purpose of the guide, provide a brief historical overview of high school-college cooperation, and establish the benefits of articulation. Next, 10 guiding principles are stated, focusing on the importance of leadership, early faculty and counselor involvement, respect and trust, mutual benefits, written agreements, open and frequent communication, modest initial goals, clearly defined roles, competency-based curricula, and a common focus on goals rather than on turf. Next, ten action steps for successful articulation are presented, including: (1) take the initiative; (2) schedule a planning meeting; (3) secure validation by chief executive officers; (4) develop coordinating mechanisms; (5) provide orientation for staff members of participating organizations; (6) arrange interagency work sessions; (7) complete draft agreements; (8) publicize the articulation agreements; (9) implement the process; and (10) review the process annually. The final section identifies questions that are likely to arise with respect to the sharing of instructors and facilities, the role of technology, financial implications, equivalent credits, connections with other higher education institutions, and overcoming resistance. Descriptive essays on several existing programs, sample forms and agreements, and a glossary are included in the guidebook. (AYC)

FORMAT: Guidebook; Project Description; 111p.

TITLE: ***High School/Hartnell Coordinating Council 1985-86 Year-End Report.***

DATE: 86

AUTHOR: Orton, Marylin

AVAILABILITY: For a microfiche copy of this document order ED276481 from ERIC.

ANNOTATION: In spring 1985, Hartnell College and ten area public and private high schools in California formed the High School/Hartnell Coordinating Council (HSHCC) to facilitate communication and cooperation between the high schools and the college. During 1985-86, HSHCC undertook the following activities: (1) monthly meetings to address issues of concern to all Salinas Valley educators; (2) the first Salinas Valley College Night, during which representatives from 50 colleges and universities were available to Salinas-area high school students; (3) three full-day articulation workshops focusing on mathematics, English, and counseling, during which participants shared information regarding course content, assessment techniques, and counseling; voiced expectations for student performance; and identified mutual professional issues and problems; and (4) articulation events developed by high school and college faculty from the areas of art, business education, English as a second language, science, and social studies. Among the outcomes of these activities were the formation of the Mathematics Council of the Salinas Valley, the development of a course matrix indicating course equivalency in mathematics among schools, the identification of all required literature from grades 9 through 14, the administration of assessment tests by Hartnell personnel in area high schools, and the development of greater understanding and more positive attitudes. Goals for the following year include the continuation of articulation in currently involved disciplines, the expansion of articulation efforts into new areas including social and natural sciences and technology, the coordination of dropout prevention programs in the high schools, and the organization of programs allowing for concurrent enrollment. (EJV)

FORMAT: Project Description; 7p.

TITLE: ***Maricopa County Vocational Education Plan: 1987 Update.***

DATE: 86

AVAILABILITY: For a microfiche copy of this document order ED280539 from ERIC.

ANNOTATION: Designed as a management tool for governing boards and administrators to promote the development and improvement of vocational education opportunities in Maricopa County, this report presents an update of a five-year (1984-89) vocational education plan for secondary and postsecondary education. Section I provides an introduction to the report and to vocational education planning in the county. In addition, planning assumptions concerning technological, financial, political, demographic, and economic trends are discussed, new goals for 1987 are presented, and the members of the Maricopa County Vocational Education Planning Council are listed. Section II presents an update on progess made in the areas of articulation between high schools and two-year colleges, and two-year and four-year colleges; opportunities for coordination between public and private schools; labor market demand and program priorities; and the financing of occupational programs. After Section III identifies goals and objectives for 1987-88 related to the same four areas, Section IV presents recommendations that address statewide issues of funding and legislation. Appendices include an inventory of training programs in the county, and economic and employment data and forecasts. (LAL)

FORMAT: Report; Project Description; 77p.

TITLE: ***A Model Secondary/Postsecondary Program to Prepare Students for Employment in High Technology Occupations. Final Report.***

DATE: 87

DEVELOPER: Leander Independent School District, TX.

AVAILABILITY: For a microfiche copy of this document order ED295056 from ERIC.

ANNOTATION: The Leander Independent School District in Austin, Texas, undertook a project to (1) research the training needs for high-technology occupations in the Greater Austin area, (2) develop a statewide model of an articulated 2 + 2 program to prepare students for careers as technicians, and (3) implement the articulated 2 + 2 program with Austin Community College. (The term 2 + 2 means coordination of the last two years of high school with two years of postsecondary course work.) Both a mailed survey and a series of in-depth interviews were conducted with representatives from advanced technology industries in the Austin area. After a review of the results, work to develop a curriculum to train instrumentation and control technicians was begun. A list of job competencies was developed from the data obtained during the survey and interviews and subsequently sent to eight Austin-area industry representatives for evaluation, whose directives were compiled to form the basis of the curriculum design. The curriculum delivery system was then analyzed in the light of current course offerings in the

Leander Independent School District and Austin Community College. Decisions were also reached as to the way in which the curriculum would fit into the overall plan generally followed by high school students, and on the mechanics of developing an articulated 2 + 2 agreement between the two schools. Draft and final versions of the agreement were ultimately developed. Appendixes make up the greater part of the document. They include the survey questionnaire and cover letter, interview guide, competency evaluation form, a table showing correlation of competencies to course content, a guide for developing a 2 + 2 curriculum, instrumentation and control, curriculum course outlines, a chart showing alternative entry points for the curriculum, guidelines for developing lecture and laboratory facilities, and reference materials used for the curriculum. (MN)

FORMAT Research Report; Test; Questionnaire; 102p.

TITLE ***The Neglected Majority.***

DATE 85

AUTHOR Parnell, Dale

AVAILABILITY For a microfiche copy of this document order ED262843 from FEIS.

ANNOTATION Designed for high school and community college leaders, this book examines a number of issues related to student success, learning continuity, individual differences, and the lack of community college involvement in secondary education, and offers a proposal for increasing high school/community college program cooperation and coordination. Chapter I examines some dilemmas faced by educators in defining excellence. Chapter II looks at the effects of technological, educational, and socioeconomic tensions on educational excellence. Chapter III highlights such barriers to excellence as unfocused learning, loss of continuity in learning, failure to accommodate individual differences, and unfounded images about learning. Chapter IV offers a model of careers education as a learner-centered bridge between subject-matter disciplines and the competencies required by modern life. In Chapter V, the "Opportunity with Excellence" philosophy is proposed as the basis for the community college mission, and a policy statement for the associate degree is presented as developed by the American Association of Community and Junior Colleges. Chapter VI underscores the importance of cooperation and coordination between the high school and the community college, offering examples of successful efforts around the nation. Chapter VII delineates the assumptions and characteristics of a 2 + 2 Tech-Prep/Associate Degree Program, which blends the liberal and practical arts in a coordinated program that begins during the last two years of high school and culminates with an associate degree. Finally, suggestions for cultivating excellence are presented. (LAL)

FORMAT Project Description; Position Paper; 189p.

TITLE ***Occupational Program Articulation. A Report of a Study Prepared by the Task Force on Occupational Program Articulation. National Council for Occupational Education.***

SERIES **Monograph Series Volume 12, Number 1.**

DATE 89

AVAILABILITY For a microfiche copy of this document order ED321795 from FEIS.

ANNOTATION In 1989, a survey was conducted of two-year postsecondary institutions to gather information designed to identify and define articulation activities, evaluate these articulation efforts, and identify model programs. The survey was mailed to 675 institutions, generating 205 usable responses for a response rate of 30%. Major findings of the survey included the following: (1) 90% of the responding institutions had a student enrollment of 5,000 or more, with 92% of those surveyed involved in some type of articulation activity; (2) advanced placement agreements were in place at 82% of the institutions; (3) tech-prep programs (i.e., pre-technical programs that provide a broad basic background in technology) 32% of the respondents; (4) 37% of respondents reported articulation activity in 2 + 2 programs in which the first two years are taught at the secondary school level; (5) 90% of the respondents reported activity in programs to help students progress from the two-year postsecondary level to the four-year postsecondary level; (6) 96% of the respondents undertaking articulation activities did so to improve student and program outcomes, while faculty cooperation (63%), cost reduction (42%), and complying with state regulatory requirements (27%) were other reasons given; (7) responding institutions had articulation agreements in the technologies of business and office (86%), engineering (59%), industrial (58%), health (58%), scientific (24%), and/or public service (26%); and (8) while 90% of institutions indicated that they had formal written articulation agreements, less than half of the respondents (42%) were meeting the goals of their agreements, while 48% were only partially successful. The survey instrument is attached. (JMC)

FORMAT Statistical Material; Research Report; 45p.

TITLE ***Ohio Vocational Education-University Linkages.***

DATE 85

AUTHOR Hamilton, James B., and Others

DEVELOPER Ohio State Department of Education, Columbus. Division of Vocational and Career Education.

AVAILABILITY For a microfiche copy of this document order ED262270 from FEIS.

ANNOTATION A study was conducted to develop a model to strengthen the linkages between appropriate Ohio universities and the Ohio Department of Education, State Division of Vocational and Career Education (SDVE). Alternative delivery patterns were reviewed, and appropriate vocational education/university linkage factors were identified. Next, three workable models for improving such linkages were developed, and a composite model was formulated from the three recommended for implementation. Included in the composite model were strategies for delivering the following basic services: preservice education of nonvocational teacher education-degreed persons; supervision of new vocational personnel; pedagogical, technological, and informational update; skills testing; curriculum development and dissemination; and research and development. It was recommended that the Ohio SDVE do the following: establish a transition period of at least one year before requiring implementation of the model; give teacher educators an important role in the implementation activities; consider some incentives to ensure the commitment of universities in the State to the proposed activities; contact other States that have reorganized their vocational education-university linkage relationships; and designate at

least 50 percent of one SDVE staff person's time to maintain the linkage relationship with universities. (Appendixes to this report contain a list of advisory panel members, model rating criteria, and descriptions of the original three models.) (MN)

FORMAT Research Report. 82p.

TITLE ***Partnerships with Public Schools.***

DATE 86

AVAILABILITY For a microfiche copy of this document order ED284622 from FEIS.

ANNOTATION In keeping with Bunker Hill (Massachusetts) Community College's (BHCC's) commitment to developing and maintaining effective working relationships with the many communities in its service region, important elements of the college's outreach efforts continue to be programs and services developed in cooperation with the public schools. Examples of BHCC's partnerships include the following: (1) joint sponsorship with Charlestown High School of a learning center, graphic design program, and Career Beginnings demonstration project designed to mitigate rising dropout rates among urban youth; (2) the BHCC/Mystic Valley Regional Collaborative focusing on curriculum development in elementary science, application of media technology to curriculum development, and career awareness for high school students; (3) articulation efforts in computer science technology, electrical/electronic technology, graphic arts, business/office education, health technologies, and culinary arts as well as a "College Liaison" English-as-a-Second Language program with two Cambridge public schools; and (4) a collaborative planning project involving BHCC, Roxbury Community College, and the Humphrey Occupational Resource Center in the exploration of potential areas of articulation. Additional materials describing or illustrating particular aspects of these programs are appended. (PAA)

FORMAT Project Description. 17p.

TITLE ***A Plan to the Future in Home Economics Education. Draft Curriculum.***

DATE 88

AUTHOR Ruckes, Nina Tiglio; Mongillo, Michael

DEVELOPER Connecticut State Department of Education, Hartford. Division of Vocational, Technical, and Adult Education.

AVAILABILITY For a microfiche copy of this document order ED307400 from FEIS.

ANNOTATION This curriculum guide was prepared to help Connecticut high schools offer an opportunity to disadvantaged high school students who are interested in home economics education to earn some college credit toward a degree in dietetic technology. The curriculum guide includes an overview of the course with a course description, recommended textbooks, objectives, outline, and evaluation methods. The nine units of the course cover the following topics: how food affects you, rating yourself nutritionally, physiology for nutrition, water, carbohydrates, lipids, proteins, vitamins, and minerals. Each unit consists of a behavioral objective, suggested evaluation, learning activity/resource, pretest, content related to the suggested texts, study vocabulary, and suggestions for evaluation. Expected outcomes and a list of available resources are listed. A comprehensive examination completes the course. (KC)

FORMAT Teaching Guide. 77p.

TITLE ***Post-Secondary Analysis of Clothing/Textiles Technology Programs in Texas.***

DATE 85

AUTHOR Glosson, Linda R.; and Others

DEVELOPER Texas Education Agency, Austin. Department of Occupational Education and Technology.

AVAILABILITY For a microfiche copy of this document order ED266261 from FEIS.

ANNOTATION A study examined postsecondary occupational programs in clothing and textiles technology in Texas in order to (1) identify common essential competencies taught in postsecondary clothing/textiles technology programs; (2) develop and distribute student competency profiles of essential common competencies shared by the eight areas of study within these programs; (3) determine clothing/textiles technology competencies common to both secondary and postsecondary programs; (4) develop a plan for articulation among and between postsecondary and secondary clothing/textiles technology programs; and (5) develop a model for improving communications among practitioners at both instructional levels. Data were obtained from a two-round Delphi study that was originally mailed to 100 postsecondary textiles/clothing teachers throughout Texas. Sixty-one teachers completed the first round and 45 completed the second. Of the 70 competencies and 259 subcompetencies included on the survey instruments, 59 and 191 respectively, reached a 70 percent or more consensus. Some of these were directly related to instruction provided at the secondary level in the areas of clothing, textiles, and home furnishings. (Appendixes, which comprise two-thirds of this report, include various survey-related correspondence, the survey instruments used in each round, a list of competencies and subcompetencies not reaching consensus, tables displaying responses pertaining to each of the individual competencies and subcompetencies, and a post-secondary clothing and textiles student competency profile.) (MN)

FORMAT Research Report; Test; Questionnaire. 161p.

TITLE ***Preparing Workforce 2000 through Vocational Technical 2 + 2 Programs.***

DATE 90

AVAILABILITY For a microfiche copy of this document order ED318516 from FEIS.

ANNOTATION An overview is provided of the 1989 accomplishments of the Portland Area Vocational Technical Education Consortium (PAVTEC), which was created to strengthen partnerships between Portland Community College (PCC) and local high schools to provide high-quality articulated vocational-technical programs. The first section looks at the roles of PAVTEC, local school districts, PCC, and the State Department of Education in efforts to prepare a regional workforce for the year 2000. Financial highlights are discussed next, including PAVTEC's use of federal and local resources and funding from the new Oregon Workforce 2000 Act. This section also includes a five-year revenue profile, and graphs showing PAVTEC's yearly expenditures from 1986 to 1989, its budgets for 1989-90 and 1990-91, and 1990-91 Workforce 2000 funding. The next section looks at PAVTEC's accomplishments during 1989-90, focusing on the following areas: (1) program management and organization; (2) the work of a Special Needs Task Force to meet the needs of the disabled and disadvantaged; (3) a 2 + 2 + 2 Tech Prep Model Program in Electronic Engineering Technology, which links PCC's associate degree program to a high

school electronics cluster and the Oregon Institute of Technology's upper-division programs; (4) the accomplishments of committees and subcommittees on demonstration projects, program continuance/improvement, staff development, forecasting and advising, marketing and communications, and new avenues for articulation and partnerships; and of the PAVTEC steering committee; (5) results of an impact evaluation of regional cooperative vocational-technical education and 2+2 programs; (6) data on student and school-district participation; (7) updates to PAVTEC's three-year plan; and (8) the expansion of the Assistantship internship program for vocational-technical teachers and counselors. Following a summary of PAVTEC's first four years, the report suggests future directions in the areas of technology, trade, hospitality, and health education; meeting the education and training needs of employers; and local-state-federal partnerships to ensure funding. Members of PAVTEC's Representative Council are listed. (MC)

FORMAT Project Description. 28p.

TITLE ***Putting Technology to Work for Transfer Students: Will These Courses Transfer?***

AUTHOR Price, Thomas S.; Miller, Richard H.

JOURNAL Community, Technical, and Junior College Journal; v59 n2 p43-44 Oct-Nov 1988

ANNOTATION Describes Montgomery College's (Maryland) project to provide students with a list of courses that transfer to local colleges and admissions information for each transfer program; to dispel rumors that Montgomery courses do not transfer; and to update information regularly. Describes the development, maintenance, benefits, and costs of the articulation/advising system. (DMM)

TITLE ***Regional Planning/Articulation. A Final Report of Research.***

DATE 85

AUTHOR Davis, Russell, and Others

DEVELOPER Texas Education Agency, Austin. Department of Occupational Education and Technology.

AVAILABILITY For a microfiche copy of this document order ED262165 from FEIS.

ANNOTATION A project was undertaken to (1) develop a model for regional planning of vocational education based on service center regions in Texas; (2) establish an effective communications system for providers of occupational education in the state; (3) provide a process for the inservice training of participants in regional vocational planning; and (4) develop a process of articulation between all entities (providers, business/industry, and government) of the planning region. After examining all the data compiled during the project, the project staff recommended that the Texas State Board for Vocational Education should establish 24 technical assistance regions in the state for the purpose of providing technical assistance to local providers in the planning, articulating, and evaluating of vocational education and job-skill training programs. The following recommendations were also made: (1) the boundaries of these regions should coincide with the boundaries of the 24 Councils of Governments in the state; (2) they should be designated official areas for the planning and articulation of vocational education; (3) the State Board should reassign staff of the Department of Occupational Education and Technology to provide for at least one staff member to serve each of the 24 regions; and (4) a two-way communication system should be established to evaluate services delivered at the state, regional, and local levels. (MN)

FORMAT Project Description. 33p.

TITLE ***School-Related Packages to Support OS:IS. A Feasibility Study.***

DATE 86

AUTHOR King, Alan, and Others

AVAILABILITY For a microfiche copy of this document order ED271599 from FEIS.

ANNOTATION A study investigated the feasibility of developing school-related packages to assist secondary school students in their movement through secondary school into and through postsecondary occupational preparatory programs, and ultimately into the world of work. Three phases occurred simultaneously. The first determined the approach to be followed—the generic skills approach. A second phase assessed business, health sciences, and technology programs offered in the community colleges to determine skills/competencies required for entry. The third phase involved an analysis of available curriculum outlines. The outcome of the research was that school-related packages were judged to be feasible. Rather than using a generic skills approach in its purest form, the 13 packages guided students toward occupational families in three fields: business, health, and technology. Research showed that, as students moved from secondary schools into colleges, gaps existed in students' background in communications, computation, problem solving, and knowledge of responsibilities associated with the preparation for a specific vocation or group of vocations. Overlaps were found between the two systems, particularly in course and text duplications. Pilot testing of package drafts with secondary school and college officials provided feedback to ensure package relevance, usefulness, and ease of use. The school-related packages are appended. (YLB)

FORMAT Evaluative Report. 114p.

TITLE ***A Secondary/Postsecondary Program to Prepare Master Technicians.***

DATE 86

AUTHOR Phillips, Cecil G., Jr.; Kuchinsky, Charlotte A.

AVAILABILITY For a microfiche copy of this document order ED267845 from FEIS.

ANNOTATION A description is provided of the "Secondary/Postsecondary Program to Prepare Master Technicians," a state-funded pilot project designed to develop a "2 + 2" model in the field of electronics/electromechanical technology. Section I provides an overview of the project, a copy of the project agreement, lists of local education agency and business/industry/government participants, an organizational chart, an outline of the project structure, bylaws of the executive committee and collaboration council, a statement of project objectives, and a timetable. Section II, which focuses on curriculum development, (1) describes research to determine entry-level competencies expected by employers; (2) illustrates technical workforce changes; phases of curriculum development; the cyclical process for forecasts of occupational demand; job opportunities in the electronics/electrome-

chanical technology field, and new technology occupations. (3) offers a brief description of the Developing A Curriculum (DACUM) approach, (4) provides a description of the master technician (MT) program, including lists of courses in the secondary and postsecondary curricula. (5) identifies advantages of the MT approach; and (6) illustrates student flow. Finally, Section III presents materials developed for the project's public relations effort, with attention to the changing role of the technician, the support of business, industry and government for the program, and the promise of the academic and vocational mix of the program. Lists of speakers-bureau participants and materials developed for the project conclude the report. (LAL)

FORMAT Project Description, 46p

TITLE ***Some Current Issues in Adult, Career, and Vocational Education.***

DATE 87

AUTHOR Miller, Juliet V.; Imel, Susan

DEVELOPER Office of Educational Research and Improvement (ED), Washington, DC

AVAILABILITY For a microfiche copy of this document order ED281899 from FEIS

ANNOTATION Four representative issues affecting the fields of adult, career, and vocational education are examined. These issues revolve around the following questions: (1) What career-related curriculum should be incorporated into the new basics? (2) What contributions can vocational and career education make to reducing the dropout rate? (3) How can articulated secondary-postsecondary programs support high-quality occupational training? and (4) How can literacy programs increase the literacy rate among adult Americans? Effective and innovative programs that are currently addressing those questions are discussed. These issues are representative of various educational levels and grow out of the following three major trends: (1) a changing workplace and its effects on occupational and educational requirement; (2) the growing concern for reaching disconnected youth and adults; and (3) the current emphasis on educational excellence. This report attempts to clarify the context surrounding each of the four issues, to describe emerging and promising educational approaches, and to suggest future directions needed to strengthen research, development, dissemination, and implementation. References are included. (PS)

FORMAT Report, 23p

TITLE ***Spotlight on the Transfer Function: A National Study of State Policies and Practices.***

DATE 90

AUTHOR Bender, Louis W., Ed

AVAILABILITY For a microfiche copy of this document order ED317246 from FEIS

ANNOTATION An examination is provided of state policies relating to transfer and articulation and of the transfer problems and issues reported by community, technical, and junior colleges and students in various states. First, an executive summary addresses such issues as misunderstandings about the transfer/articulation phenomenon, trends revealed in state policies, concerns that have prompted increased state attention to transfer, and recommendations emerging from the study. Part I includes "State Articulation Policies: Myths and Realities," by Louis W. Bender, which analyzes state-level policies, legislative mandates, executive orders, regulations, and studies of state boards or other regulatory bodies. "Articulation and State-Level Information Systems: A Necessary Marriage," by William R. Odom, provides an idealized model of state-level articulation information systems. Part II consists of case study reports of successful transfer and articulation at the institutional or regional level in California, Florida, New Jersey, and Texas. This section contains "New Jersey Institute of Technology and Transfer Relations," by Gary Thomas; "An Articulated Program between the University of Central Florida and Valencia Community College," by William Michael Hooks and Frank E. Juge; "The Articulation/Transfer Activities of the Los Rios Community College District," by Barbara L. Howard; "Addendum: Transfer Opportunity Program," by Phil DuBois and Barbara L. Howard; and "A Context for Transfer Policy in Texas Higher Education," by Gloria Ann Lopez and Dale Campbell. (JMC)

FORMAT Evaluative Report, 78p

TITLE ***Technology Education: A Kansas Curriculum Development Project.***

DATE 88

AUTHOR Lemons, C. Dale

AVAILABILITY For a microfiche copy of this document order ED304529 from FEIS

ANNOTATION A project was conducted to develop an articulated technology education curriculum for middle school/junior high school, high school, and teacher education levels in Kansas, based on the successful program developed at Pittsburg Middle School, Pittsburg, Kansas. Through a series of two-day meetings, a task force developed a rationale, basic definitions, program assumptions, typical technological concepts (content identifiers), an articulated program model, and a plan of action for developing, field-testing, evaluating, and implementing technology education in Kansas. As a result of the project, technological concepts were written, guidelines and technical assistance were provided, teacher education programs were conducted, and a plan for continual evaluation and upgrading was implemented. Each module of the delivery system was to include problem-solving opportunities, examples of technological impacts (social, political, consumer, educational, occupational, and environmental), and creativity. A program model was developed that can be adapted to various school situations. (KC)

FORMAT Conference Paper, Project Description, 10p

TITLE ***Technology Education Partnerships: Arkansas Articulation.***

DATE 89

AUTHOR Thompson, Dale E., and Others

AVAILABILITY For a microfiche copy of this document order ED315574 from FEIS

ANNOTATION The Arkansas Articulation Program is the process used since 1986 to supervise the coordination between secondary and postsecondary levels of vocational, technical, and technology education courses whose content has been standardized as the result of competency identification specific to each subject area. The program aims to strengthen the curriculum and to shorten the technology and vocational training

process by eliminating duplication of course work. The program will achieve its purpose through the formation of partnerships between secondary and postsecondary technology educators, and the process it will use has the following phases: (1) identification of schools by regional articulation coordinators, assignment of interested administrators to a regional articulation committee, and selection of technology subject-matter areas targeted for articulation; (2) classroom teacher identification of any duplication among courses between levels and development of articulation agreements between schools so that students do not relearn material in which they are already competent; (3) review of the agreements by representatives of all schools involved; and (4) implementation of the agreements, including informing students, teachers, and counselors of the existence of the agreements, which provide for direct credit transfers, advanced placement standings, and/or credit by examination. By December 1989, nineteen agreements had been implemented for drafting, 42 for electronics and electricity, 8 for computers, and 13 for welding programs. (The document includes a sample agreement and an application for advanced placement.) (CML)

FORMAT: Conference Paper; Project Description; 14p

TITLE: ***Technology Programs: A Technology Education Model for Ohio.***

AUTHOR: Savage, Ernest

JOURNAL: Technology Teacher; v49 n5 p8-12 Feb 1990

ANNOTATION: Describes the Model Technology Systems Project, funded by the Ohio Department of Education to develop an articulated Industrial Technology Education Program K-12. The success of the pilot led to the expansion of the scope to include the delivery of technology education curriculum. (JOW)

TITLE: ***10 Recommendations for Improving Secondary Vocational Education.***

DATE: 85

AVAILABILITY: For a microfiche copy of this document order ED257968 from FEIS

ANNOTATION: The Southern Regional Education Board's Commission for Educational Quality developed the following 10 recommendations for improving secondary vocational education programs in conjunction with academic achievement: (1) require students in vocational programs to meet the same basic skill standards on high school competency tests as any student seeking graduation; (2) recognize and/or redesign certain vocational high school courses to meet graduation requirements if such courses can be shown to lead to the mastery of specific learning outcomes of corresponding academic courses; (3) jointly develop, with assistance from both academic and vocational teachers, applied mathematics and science courses that take advantage of practical experiences; (4) remediate deficiencies in basic skills in poorly prepared students; (5) design pilot programs that link academic learning to practical vocational applications and meet academic graduation requirements; (6) concurrently, evaluate and strengthen teacher education programs to increase the academic competencies of vocational teachers and the applied teaching skills of academic teachers; (7) cooperate with employers and postsecondary institutions to develop 2 + 2 programs in which a planned four-year curriculum connects the last two years of high school with two years of postsecondary study along with on-the-job learning; (8) encourage joint enrollment programs in which high school students who have completed the prerequisites enroll in postsecondary technical programs while completing high school; (9) redesign industrial arts courses to relate to modern technology; and (10) establish standards and initiatives for improving cooperative education as a method for on-the-job learning. (KC)

FORMAT: Position Paper; 7p

TITLE: ***Transfer Relationships between Two-Year and Four-Year Technological Programs.***

DATE: 88

AUTHOR: Thomas, Gary

JOURNAL: New Directions for Community Colleges; v16 n1 p49-55 Spr 1988

ANNOTATION: Explains how the New Jersey Institute of Technology has worked with community colleges in developing four variants on articulation (2 + 2 programs, cooperative education programs, consortia arrangements, and dual admissions) to facilitate transfer for engineering students. (DMM)

TITLE: ***2 + 2 Program Guide: 2 + 2 Tech-Prep Associate Degree Program.***

DATE: 90

AUTHOR: Marmaras, Judy

AVAILABILITY: For a microfiche copy of this document order ED317251 from FEIS

ANNOTATION: The 2 + 2 Tech-Prep Associate Degree Program at the Community College of Rhode Island (CCRI) is a high school/community college partnership which provides an alternative program of study for students who are enrolled in general education or vocational programs. Students are targeted for the program in grade 10 and begin the program in grade 11 at the secondary level. The 2 + 2 curriculum at the secondary level is an occupational core curriculum that highlights goal setting and development, as well as practical application. Students enrolling in the 2 + 2 program take Principles of Technology, English (with the Applied Communications component where available), and Math in grades 11 and 12. Students who successfully complete the high school portion of the 2 + 2 program are guaranteed acceptance into the technical programs at CCRI. Following the format of the tech-prep curriculum as a whole, specific articulated degree curricula have been developed for chemical technology, computer engineering technology, electronics, electronic engineering technology, engineering, instrumentation technology, machine design, machine processes, and mechanical engineering technology. Course sequences for each of the tech-prep curricula are included in the program guide. An appendix provides sample placement test questions. (JMC)

FORMAT: Program Description; 28p

TITLE: ***Vocational Education: Issues for Our Future.***

DATE: 88

AUTHOR: Feldman, Marvin

AVAILABILITY: For a microfiche copy of this document order ED303592 from FEIS

ANNOTATION: As the United States faces great changes in the economy and society, more skilled workers are needed to keep the country competitive. However, half of the young people are being miseducated. A coordinated approach to the problem would be to provide a program responsive to the complex interaction of the job-related education needs of students and adults, the business community, labor and the job market, and the nation's economy. Vocational education needs to be tailored to all students, to teach them in the way they best learn. Presently, a bill known as the "Tech-Prep Education Act" is being considered by Congress. The bill provides for the establishment of grants to consortia of local education agencies and community colleges for the purpose of developing and operating four-year technical preparation programs. These programs would consist of the last two years of secondary school plus two years of higher education, and they would include a common core of mathematics, science, communications, and technologies. The student would graduate with an associate degree in a specific career field. A number of demonstration projects similar to the concept of the "tech-prep" bill have been conducted successfully in the past 20 years, and they could serve as models for future programs, whether or not the "tech-prep" bill is passed. The bill recognizes that vocational education can be effective in increasing the nation's productivity. With this bill, vocational education truly enters the mainstream of U.S. education. (KC)

FORMAT: Position Paper; Conference Paper; 14p.

TITLE: ***Wood Technology—Science. Haywood County's Vocational-Math-Science Curriculum Alignment Project.***

DATE: 85.

DEVELOPER: North Carolina State Department of Public Instruction, Raleigh. Division of Vocational Education.

AVAILABILITY: For a microfiche copy of this document order ED269568 from: FEIS.

ANNOTATION: This guide is intended to assist vocational educators teaching a course in wood technology to relate the skills addressed in science courses to a particular vocational education course. The guide consists of a curriculum alignment chart that cross-references vocational performance indicators to science skills/competencies. The science competency indicators presented for each vocational-education performance indicator are broken down according to science course and grade level. Selected teacher helps, including suggested true-and-false, multiple-choice, and essay questions for students are also provided for each performance indicator listed in the curriculum alignment chart. (MN)

FORMAT: Teaching Guide; 63p.

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